

- NEAVE, S. A. 1939-50. Nomenclator Zoologicus. 5 vols. *London Zool. Soc.*
- PARISI, B. 1916. I decapodi giapponesi del Museo di Milano. IV Cyclometopa. *Atti. Soc. ital. Sci. nat. Pavia*. 55 : 153-190, 4 text-figs., pls. 7-11.
- RATHBUN, M. J. 1923. Report on the Crabs obtained by the F.I.S. "Endeavour" . . . *Biol. Res. "Endeavour"* 1909-1914 5 (3) : 95-156, 3 text-figs., pls. xvi-xlii.
- SAKAI, T. 1934. Brachyura from the coasts of Kyusyu, Japan. *Sci. Rep. Tokyo Bunrika Daig.* B I (25) : 281-330, 26 text-figs., 2 pls.
- SAKAI, T. 1939. Studies on the Crabs of Japan. IV. Brachygnatha, Brachyrhyncha. *Tokyo. Yokendo. Ltd.* pp. 365-741, 129 text-figs., 70 pls., 6 tables.
- URITA, T. 1926. A check list of the Brachyura found in Kagosima Prefecture, Japan. *The Tsingtao Times*. iii + 41 pp.
- WELTNER, W. 1897. Verzeichnis der bisher beschriebenen recen-ten Cirripedenarten. *Arch. Naturg. Berlin* for 1897 I : 227-280. Note on last page by HILGENDORF and WELTNER.

JOHN GILBERT'S NOTEBOOK ON MARSUPIALS

BY MAJOR H. M. WHITTELL, O.B.E., BRIDGETOWN*

In the library of the Queensland Museum, Brisbane, there is a copy of Volume XXIV of Jardine's *Naturalist's Library* (Mammalia. Marsupialia, or Pouched Animals, by G. R. Waterhouse, August 1841), which, though in the original covers, has had the pages referring to Australian marsupials mounted and interleaved. It commences with page 117 of Waterhouse's text, continues to page 165, the pages covering the kangaroos are missing, and the book commences again at page 249 and continues to the end (page 323). Pages 262 and 263, concerning the Spotted Phalanger, are not included. This little book was Gilbert's notebook on marsupials and he has entered in his own handwriting further notes on the species he collected. The observations end with a brief item on the one Monotreme in our fauna, the Eehidna.

An announcement of the existence of this notebook together with a preliminary description have already been made (Whittell, 1951). In that paper it is stated that the missing pages 262 and 263 concern an American marsupial. This is not the case as they refer to the Spotted Phalanger (Cuseus) (*Phalanger maculatus* (Geoffroy)) of the New Guinea region which, subsequent to Gilbert's death, was discovered on Cape York Peninsula by John Macgillivray. Of considerable interest is the fact that the notebook contains two pen-and-ink sketches of marsupials "which are possibly the work of Gilbert. If that be so, it is the first intimation we have that Gilbert was able to produce artistic and accurate drawings." As recorded by Whittell (1951) there was found with Gilbert's notebook a ms. index to a notebook on kangaroos but unfortunately the volume itself was not forthcoming.

* After Major Whittell's death the manuscript of this article was completed for publication by Mr. J. H. Calaby, Wildlife Survey Section, C.S.I.R.O., Perth.

Reference to Gould's *Mammals of Australia* (1845-1863) shows that most of Gilbert's notes, but not all, are published there, chiefly in the text to the plates, but a few are included in the *Introduction* which was also issued in a limited octavo edition in 1863. However, they are generally condensed and always re-written in a more elegant style. Quite often the notes are not acknowledged as having come from Gilbert. In view of these considerations and the fact that some of the notes as quoted by Gould have been used by authors of general works on Australian marsupials from as soon as they were published (Waterhouse, 1846) until the present day (Troughton, 1954), it is believed that their publication in full would serve a useful purpose and reflect a little more credit, however belated, on one of the most important discoverers in Australian natural history.

This notebook contains notes on all non-macropodid marsupials occurring in South-western Australia with the notable exception of the Quenda (*Isodon obesulus* (Shaw, 1797)). Gould, however, published notes on this species sent to him by Gilbert, and there are specimens collected in South-western Australia by Gilbert in the British Museum (Thomas, 1888). Gilbert collected the type specimens of almost half of the species or subspecies of recent marsupials known to occur in South-western Australia (see Glauert, 1950 for list). Only one recent marsupial has been discovered in South-western Australia since Gilbert's day, *Sminthopsis granulipes*, Troughton, the type of which was collected at King George's Sound in 1869 but was overlooked and remained undescribed until 1932, no doubt because of its close resemblance to *S. crassicaudata* (Gould).

In some cases the native names given in Gilbert's notebook differ slightly from those published by Gould.

The following are the ms. notes in Gilbert's handwriting. They are listed under the modern names of the species to which they refer (with better known synonyms, in certain instances, within brackets). Gilbert's text, with any headings he used, is printed in small, 6pt. type.

CHUDITCH, *Dasyurus geoffroyi*, Gould, 1841.

Dasyurus Geoffroyi

Bur-lad-da Perth

Bur-ra-jit York and Toodyay

Ngoor-ja-na Vasse

Dju-tytche K.G.S.

Native Cat of the Colonists of Western Australia

This species is very generally dispersed over the whole colony of Western Australia. It has also been seen at South Australia and New South Wales from both of which places Mr. Gould collected it. It lives in hollow stumps, hollow trees or in holes in the rocks from which they issue at night in quest of food consisting for the most part of birds and the smaller quadrupeds, it is said to occasionally feed on insects a gentleman informed me he found its stomach completely filled with the White Ant. It is a very destructive species in the farmyard attacking indiscriminately Ducks, Geese, Turkeys or Fowls.

No. 21 of my collection.

WAMBENGER, *Phascogale tapoatafa* (Meyer, 1793)
(= *P. penicillata* (Shaw, 1800))

Bul-loo-wa York
Bal-ba-ga Perth
Bal-la-wa-ra north of Perth
Bal-lard K.G.S.

Squirrel of the colonists of Western Australia.

This is a nocturnal feeder, its principal food being Colcoptera which it collects from the upper branches of the different species of acacia, but it occasionally feeds on small birds, and at one season of the year, several species of Fungi, particularly a large kind of *Garracus*. It breeds in hollows of decayed trees.

Hab: Western Australia, South Australia, and New South Wales.
No. 12 of my collection.

RED-TAILED WAMBENGER. *Phascogale calura* Gould, 1844.¹

Phascogale
Keng-goor Aborigines of the Williams River

This new species, easily distinguished from the foregoing *P. penicillata*, by its smaller size, and the reddish colour of the fur on the basal half of the tail. I only obtained one specimen of [it]; and for which I was indebted to a domestic cat. I understand that it occasionally makes its way into the stores.

This is either the same or a very near ally to the Flat-tailed Mouse of the Sydney Museum Catalogue², a species brought from the banks of the River Darling by Major Mitchell.

No. 36 of my collection.

MARDO, *Antechinus flavipes leucogaster* (Gray, 1841)³

The White-bellied Pouched Mouse
Antechinus leucogaster
Mar-do Aborigines of Moore's River
Man-durt Aborigines of Perth
Tum-mart Aborigines of King George's Sound

Head and shoulders grey, behind rather browner, with scattered longer black-tipped hairs; chin and beneath pure white, feet brownish grey. Body and head 4; tail 2½ inches. The above description was taken from a single specimen which I have reason to suppose was not a fair specimen of the species, the male being very much larger, and always nearly a third larger than the female.

This species is found in nearly every part of the Colony of Western Australia. My first specimen was a female, and it had eight young ones

¹ Gilbert's single specimen, a male, from "Williams River", is the type.

² This is presumably the animal subsequently (1856) described by Gould as *Phascogale lanigera*, from a specimen collected by Mitchell. The type specimen must have been badly prepared. Gould's plate shows a pair of animals on a tree branch and in the text he says, "In form it is precisely similar to the *Phascogale calura* but in size and colouring it is very different . . ." Krefft (1867) who also had a skin collected at the same time by Mitchell and who had seen the animal alive showed that it was completely terrestrial and had long thin legs adapted to a saltatory mode of progression. He erected for it the new genus *Antechinomys*.

The catalogue referred to is the *Catalogue of Specimens of Natural History and Miscellaneous Curiosities deposited in the Australian Museum*, (1837), compiled by George Bennett.

³ The type of the subspecies, an unsexed adult, was collected by Gilbert at "Canning R., W.A." on April 9, 1839 (Thomas, 1888).

attached to as many mammae in a semipouch similar to the Myrmecobius. The young ones were three quarters of an inch in length, quite naked, and blind; the posterior parts were most disproportionately small as compared with the anterior. The semipouch is formed by a fold of the skin of the abdomen downwards from which are numerous long hairs, which effectually cover up the young, the latter as soon as they are covered with hair, leave the semipouch, and remain in a nest formed of fine grasses, but as to the positive situation of this nest, I am not satisfied, not having myself taken it, the natives have frequently brought it to me, some have asserted that it makes a nest on the ground resembling the Bettongia Ogilbyi, while others assert as strongly the nest is always formed in the upper grasses of the Xanthorrhoea.

It is an exceedingly active little animal and when started in the bush generally makes for the first hollow log, in the absence of which it will readily take to a standing tree, up which it runs with the utmost facility, in fits and starts.

Specimens from different localities differ a good deal particularly in size, those from Perth are the largest.

Hab: Western Australia.

No. 3 of my collection.

DIBBLER, *Antechinus apicalis* (Gray, 1842)

Antechinus

Marn-dern Aborigines of Moore's River

Wy-a-lung Aborigines of Perth

Dib-bler Aborigines of King George's Sound

This species is universally dispersed over the whole of Western Australia; it is easily distinguished from all others of the Genus by the long hairs on the sides of the basal portion of the tail, which gradually shorten towards the extremity giving the tail a pointed appearance. It appears to vary a good deal in habits, in different localities. At Moore's River the natives describe it as making a nest beneath the overhanging grasses of the Xanthorrhoea. While at Perth its nest is taken either from the dead stump or from among the upper grasses of the same Plant, while at the Sound the natives constantly pointed out a nest of short pieces of sticks and grasses on the ground very much resembling the common Perameles excepting that there was in general a larger and higher heap than is generally brought together by the latter. On examining the stomach it was found to contain insects generally, but more particularly small Coleoptera. While at the Sound I obtained a female with seven young attached in the same manner as observed in *A. leucogaster*. These young were little more than half an inch in length, the hinder parts remarkably small, as compared with the anterior extremities. The young are very tenacious of life in the above instance the young lived attached to the dead mother nearly two days before they were removed when they were rather forcibly detached, I put them in spirits, and it was nearly two hours after immersion before they ceased moving.

Hab: Western Australia.

No. 2 of my collection.

FAT-TAILED DUNNART, *Sminthopsis crassicaudata* *crassicaudata* (Gould, 1844)¹

The Thick-tailed Pouch Mouse

Antechinus

Of this singular and pretty species I could gain no information of its habits. It was brought into the house by a domestic cat.

The most striking and singular character in this species, is the extraordinary form of the tail, the size of which in the dried skin is nearly a third less than nature, from its peculiar form it was quite impossible to skin it without making an incision nearly its full length, the middle or largest part was a lump of white oily fat.

¹ Gilbert's single specimen, a male, is the type.

I take this to be a very rare animal or at least a very rare local species, for no person to whom I have shown the only specimen I ever obtained at all recognises the species, not even any of the natives could remember to have seen it.

Stomach contained insects generally, irides black, full and prominent; before skinned it measured:—

Length from nose to extremity of tail	5-5/8 inches
Length of tail	1-13/16 inches
Length of face from nose to ear	7/8 inches
Length of ear	3/4 inches

Hab: Williams River, Western Australia.
No. 35 of my collection.

[Opposite the above species is a pretty pen and ink sketch of the animal.]

DUNNART, *Sminthopsis murina fuliginosa* (Gould, 1852).

Antechinus⁵

Dtam-in Aborigines of Perth

This is an inhabitant of the dead stumps of Xanthorrhoea, making no nest, but merely scraping together a few of the soft fibrous parts, and forming a floor or seat, it is rarely seen or met with in small families as in the nearly allied species from King George's Sound. Stomach contained small coleoptera. I only know of two habitats for this species, viz. the grass lands of the Toodyay Valley and in the thick groves of Xanthorrhoea surrounding the swamps and lakes around Perth.

Hab: Western Australia.

No. 1 of my collection.

Before skinning the measurements were:—

Length from nose to extreme tip of tail	7 inches
Length of tail	3-3/8 inches

Antechinus⁶

Twoor-dong Aborigines of King George's Sound

This species so much resembles that found at Perth that I first considered them as identical, until I obtained a large series by hunting them out of their nests myself. It not only differs in its mode of making a nest and other habits, but is very much darker, having the cheeks paler, while the under side is not so pure a white. Its favourite haunt is in newly burnt spots particularly around swamps or adjacent to moist lands; among the clumps of the burnt stumps of grass or small scrub it burrows out the earth, which is filled up with very small pieces of short twigs or coarse grass, formed into a round heap, a few inches above the ground, and often with the top on a level with the ground like the *Perameles*, on the top are several entrance holes, which do not appear to lead to a common centre or nest but turn and twist about among the grass roots independently of each other, the size of this little mound of grass and sticks varies from 6 to 10 inches in diameter, and from 10 to 15 inches in depth, about half the depth of the structure, are several small galleries or burrows, running out from the sides among the surrounding roots, into one or other of these the animal conceals itself when disturbed by the removal of the nest.

^{5,6} These two items refer to the same species. Gilbert's supposed distinction between the "Dtam-in" and the "Twoor-dong" was upheld by Gould who identified the "Dtam-in" with the species *albipes* (now recognised as a subspecies) described by G. R. Waterhouse in 1842 from a specimen from "Port Adelaide, South Australia," and described the "Twoor-dong" as a new species *fuliginosa* in 1852. The type is a male collected by Gilbert at "R. Avon, W.A." (Thomas, 1888). It is interesting that Gilbert apparently did not connect his specimens with *murina* which is described and figured in Waterhouse's book. Gray's list of 1841 showed *murina* as occurring in the Perth area (see Glauert, 1950).

Until the natives pointed out this singular architecture as belonging to this little animal I had passed by hundreds of them supposing they were Ant-hills, to which they bear so close a resemblance that you do not detect the difference in casually passing them. From four to seven are generally found together in one nest.

In confinement it is an exceedingly active little creature, the general contour of its body is very short and ball like; the eyes are black and prominent; the lower lip shows rather conspicuously and is of a light straw yellow colour: in one old female I could make out six mammae. It utters the singular half hissing cry, so characteristic of the marsupials. It is a very nocturnal feeder. Stomach contained insects generally.

Hab: King George's Sound,

No. 37 of my collection.

NUMBAT, *Myrmecobius fasciatus* Waterhouse, 1836.

Noom-bat Aborigines of York and Toodyay

Wai-boo Aborigines of King George's Sound

Ant-cater of the Colonists

This beautiful little animal may be said to be tolerably abundant and equally distributed over the whole of the White-Gum forest land. It is never seen west of the Darling range on the west coast, or south of Mount Barker on the south coast, when seen running on the ground, it has very much the general appearance of a squirrel. Its progressive motion being in short successive leaps, with its tail a little raised — every now and then stopping, and sitting up on its hind feet; with the body quite erect, with its hrush tail tolerably well up the back, in this way it moves on till meeting with a hollow stump, it does not immediately enter, but again erects itself at its full height as if to reassure itself of the certainty of approaching danger, this last is so constant a habit, that I never saw one enter a hollow log without.

It is by chasing them in this way into hollow stumps they are mostly captured. It is so harmless that on handling it even the minute after it is caught, it does not attempt to bite or scratch, in fact it very soon becomes tame, while it is in the hollow, and when it finds no means of escape, it gives forth a kind of half smothered prolonged grunt, produced apparently in a great measure, by hard breathing from the nose. I have heard from several settlers, who have kept the noombat in confinement, several weeks together, that it lived principally on bran, and while say they it appeared to eat with relish. I have never found anything in the stomach but white ants, from which circumstances I had considered this as forming their exclusive food in a state of nature. Its long tongue is admirably adapted for collecting these insects from the small fissures and entrance holes of the ant-hill. When they cannot obtain Ants in this way, their strong fore-claws enable them to break down the sides of the Ant-hill, thus in passing through a gum forest where the White-ant abounds, scarcely an ant-hill will be seen that is not hollowed out more or less. The male seems to be most particularly shy, or else there is a great preponderance of females over males, for I have generally remarked where you kill one of the latter, you get at least 6 of the former; one circumstance in particular would seem to strengthen this conjecture, I once took a nest of four half-grown ones, the whole of which were females. The Noombat breeds in holes or short burrows, generally choosing a grassy spot at the edge of a White-Gum forest. The young are at first naked and attached to the mammae in the semipouch precisely as in *Antechinus* until they are about 2 inches long when they are covered with hair, leave the pouch, and are then found huddled together in a warm nest like the genus *Mus*. I have never seen it run up a growing tree, although I have frequently heard it said that it does so, especially the male when closely pursued by a dog. By the natives the Noombat is considered the quickest sighted animal in the country.

Mr. Waterhouse is in error in supposing he had discovered the remains of a pouch, for the Noombat has no more than a slight fold of the skin is [sic] described in Antechinus; in fact the description of the latter, in reference to this, will equally apply to both.

The greatest number of young I have seen together attached to a female Noombat is seven, but I believe they occasionally have as many as nine or ten.⁷

No. 10 of my collection.

DALGITE, *Maerotis* (= *Thalaeomys*) *lagotis* (Reid, 1837).

Dol-golitch Aborigines of Western Australia

This is a burrowing animal, living in pairs, and choosing spots where there is a loose soil; its burrows are in general several feet in depth, and often of very great extent, and its powerful claws enable it to burrow with astonishing rapidity, which renders it anything but easy to capture; it often occurs that while the native is digging along its burrow, the animal becomes alarmed, and commences burrowing upwards from the extremity of its long burrow and thus makes its way out, generally unperceived by the man while employed digging. The Dolgoitch in a state of nature seems to be almost exclusively an insect feeder, and one of its most favourite morsels apparently is the larva of a species of *Cerambyx*, found in the roots of the Jam-wood (*Acacia*) this grub too is eaten with great avidity by the Natives, who never fail to cut it out from an exposed root where the Dolgoitch has been unsuccessful.

The *Perameles* *lagotis* is tolerably abundant over the whole of the grass district of the interior where it is exclusively confined.

The flesh is extremely delicate, and when boiled greatly resembles that of the common rabbit.

No. 29 of my collection.

MARL, *Perameles myosura* Wagner, 1841.⁸

Perameles

Mal-a Aborigines of Western Australia

Nyem-mel Aborigines of King George's Sound

This species so nearly resembles the *P. fusciventer*⁹ in general habits and manners that the one description almost equally applies to both, if anything the Mala perhaps gives the preference to more thickly scrubbed parts; a thicket of seedling *casuarina* is a favourite resort; the Mala differs from all others of the genus with which I am acquainted in the exceeding tenderness of the skin, it is so very thin, that the weight of its own leg, if suffered to hang down for a few moments is sufficient to separate it from the body; it is without exception the most difficult to skin of any Australian mammal I have yet operated upon. As far as I can learn this species is confined to the interior.

Hab: Western Australia.

No. 42 of my collection.

⁷ Several authors have pointed out that the female of *Myrmecobius* has but four mammae, and therefore Gilbert's observation of seven attached young was an impossibility. Krefft (1868) appears to have been the first to publish this fact. In the course of his remarks, he says: "... one observer, and a good one, states that he has actually seen seven young on the nipples."

⁸ A male specimen of this species collected at "York, W.A." by Gilbert is the type of *P. arenaria* Gould, 1844. However Gould synonymised *arenaria* with *myosura* after reading Wagner's description.

⁹ This is *Isodon obesulus*, the South-western Australian animal being sometimes separated as a weak race, *I. o. fusciventer* (Gray, 1841). According to Glauert (1950) Gilbert collected the type of *fusciventer* at King George's Sound.

PIG-FOOTED BANDICOOT, *Chaeropus ecaudatus occidentalis*
(Gould, 1845).¹⁰

Chaeropus castanotis Gray's Brit. Mus. Cat.

Bur-da Aborigines of the Walyemara district, W.A.
Wot-da Aborigines of the York district, W.A.

This curious new form since Major Mitchell's discovery of it on the Murray has since been found at South Australia and in Western Australia. The first seen was described as being tailless, but this character there can be no doubt now, was accidental, for both specimens from South and Western Australia, have tolerably lengthened tails. The *Chaeropus* is doubtless nearly allied to the *Perameles* and like it has a very tender skin and would be as likely to lose its tail, as I have frequently seen in the different species of *Perameles*. The description of Major Mitchell's original specimen was erroneously described, as regards the character of the hind feet. On examining the specimen deposited in the Sydney Museum I found it agreed in every particular with those I obtained in Western Australia and that sent from South Australia by Captain Grey.

The measurements of those I obtained were:—

Length from tip of nose to end of imperfect tail	12½ inches
Length of tail	3½ inches
Length of face from tip of nose to ear	2¾ inches
Length of ears	1¾ inches

The two and only specimens I obtained were brought in by a party who formed an expedition to the Walyemara district about 45 miles north-east of the Townsite of Northam a district of country abounding in swamps and thickets, the first was hunted by the dogs from a small patch of grass and took refuge in a hollow log, from which it was captured. During my last expedition to the interior my native guide frequently hunted them out of their nests, but in general the brush was so thick, it was quite impossible to either get a shot at them or offer a chance for the dogs to hunt them. It makes a nest of dried leaves, pieces of stick, dried grass, &c., the inside being lined with very soft fibrous grass, &c., with the exception of using a different material it makes a nest precisely like the *Perameles*, like the latter too on leaving its nest leaves no opening. These dense thickets doubtless form its western boundary, for none according to the natives are ever seen beyond them, and the animal before these two were brought in was quite unknown to the oldest settlers in the colony.

No. 33 of my collection.

POSSUM or KUMARL, *Trichosurus vulpecula* (Kerr, 1792).

Phalangista vulpina

Goo-mal Aborigines of Western Australia

Inhabits the hollows of standing trees, or hollow logs lying on the ground, only feeding at night on the tender shoots of the upper branches of the different species of Gums (*Eucalyptus*). In Western Australia I found this species varied very much in the colour of its fur, the young at first are often nearly black, but its most usual colour is an uniform light grey; very old males are often met with of a reddish brown colour, some have the tail tipped with black others with white; having obtained and seen a great number taken from different situations and seasons I have no hesitation in considering them as all belonging to one species. It is most abundant in the extensive Gum forests of the interior, but is very generally distributed over the whole colony of Western Australia.

No. 15 of my collection.

¹⁰The type of the subspecies, a female, was collected by Gilbert at "Boorda, Kirlitana, W.A." in October 1843 (Thomas, 1888).

This is the only species I observed inhabiting the Coburg Peninsula; it is not very abundant and from seeing a few specimens I could not learn if they are subject to the same changes on the north coast as observed on the south.

No. 8 of my collection.

WESTERN RINGTAIL, *Pseudocheirus occidentalis*

Thomas, 1888.¹²

Hepoona Cookii

Ngo-ra Aborigines of Perth

Ngorh Aborigines of King George's Sound

This species in Western Australia does not confine itself to standing trees, or to the ball like nest often seen among the smaller upper branches; but is occasionally met with in holes in the ground or hollows of dead logs; like the *P. vulpina* it varies very much in colour, from a light grey to nearly an uniform brown. In one instance I took a nest of two young ones about half grown presenting these two extremes of colouring.

Although this is very generally distributed over the whole colony it is most abundant in the beds of the rivers or other moist places.

No. 40 of my collection.

MUNDARDA, *Cercartetus eoneivnus* (Gould, 1845).¹³

Beil's Dromleia

Dromleia gliriformis Gray's Brit. Mus. Cat.

Man-dur-da Aborigines of Perth, W.A.

This little opossum is tolerably abundant in most parts of the colony on the west coast, inhabiting the smaller trees particularly the Casuarina.

I kept one alive for nine months, and it became very tame. It generally slept during the day and became exceedingly active at night. It was particularly fond of catching flies. Besides the above Habitat it is found in New South Wales and South Australia.

No. 26 of my collection.

HONEY MOUSE or NOOLBENGER, *Tarsipes spenserae* Gray, 1842.

The Tarsipes

Tarsipes Spenserae Gray's Brit. Mus. Cat.

Iee-pln Aborigines of Perth

Nool-boon-goor Aborigines of King George's Sound

This little creature inhabits the smaller trees from the blossom of which, like the Melliphagidae, it is constantly extracting honey and minute

¹¹This is presumably the same species as the previous. Under this species Gould states, "According to Mr. Waterhouse, it is also found in Northern Australia; but I observe that specimens from that country are larger than those obtained in the countries above mentioned [the southern mainland states] and a doubt exists in my mind as to their identity." The northern Australian animals were not separated subspecifically until 1897 when they were named *T. v. arnhemensis* by Collett.

¹²Gould was somewhat puzzled as to the relationships of his specimens of Ringtails from various parts of Australia, and also to which form the name *cookii* Desmarest should apply. Subsequent workers have shown it to refer to the Tasmanian form. The Western Ringtail was not differentiated from the south-eastern Australian forms until it was described as a new species by Thomas in 1888. The type is a female collected by Gilbert at "King George's Sound" on February 27, 1840.

¹³Gilbert did not differentiate this species from its representative (*nanus*) of south-eastern Australia. Two males collected by Gilbert at "Swan R., W.A." are the co-types of *concinus* (Thomas 1888).

insects. I do not think it is abundant in any part of the colony, or else it is difficult to find, for notwithstanding I offered high rewards to the natives they never brought me in more than four specimens one of these a female kept alive several months, in a few days after captivity it became quite tame, would suffer itself to be handled without attempting to escape. It would occasionally show itself for a few minutes during the day, but its general habit was to feed during the night when it became very active; one of its most constant habits was, sitting in a corner of its cage, intently watching the movement of a fly, until, attracted by the sugar, it was rapidly within the precincts of the wires, when with one bound exceedingly rapid the fly was seized, the Tarsipes with its prey between its fore-feet sitting very erect, after tearing off all the rejected parts, viz. the wings, head, and legs, would devour the body with avidity. I obtained a living specimen which I put in the same cage, the latter soon commenced worrying its companion, which in a few days after died.

The Tarsipes uses its tail precisely as seen in the Nepona; but its most conspicuous character is its long prehensile tongue; it was very fond of licking its food if very sweet from the finger, in this way I have often seen the tongue well displayed, at times I have often seen it distended (sic) a full inch beyond the nose, the general form is very flattened, tapering to a very delicate point, on each side near the tip the edge is slightly serrated. The eyes are not large, black, and very prominent, in the living animal the eyes so swell out that there appears but a very small portion of the head separating them, the ears are in general carried quite erect. When sleeping it rolls itself into a ball, resting on the lower part of the back, with its long nose bent down between its fore-feet, with the tail brought up over all with the extremity lying down the back.

No. 28 of my collection.

[Opposite covering nearly the whole page is a pen and ink drawing of the animal. Well executed.]

ECHIDNA, *Tachyglossus aculeatus* (Shaw, 1792).¹⁴

Dun-ung-er-de Aborigines of Toodyay, W.A.
 Nyooong-aruu Aborigines of York, W.A.

This animal I have discovered inhabits the west coast, as well as the east. In Western Australia it appears confined to Rocky gullies.

No. 45 of my collection.

REFERENCES

- Glauert, L., 1950. The development of our Knowledge of the Marsupials of Western Australia. *J. Roy. Soc. West. Aust.* vol 34, pp. 115-134.
 Gould, J., 1845-1863. The Mammals of Australia. 1 (London).
 Gould, J., 1863. An Introduction to the Mammals of Australia, (London).
 Krefft, G., 1868. Notes on Australian Zoology. *Proc. Zool. Soc. London for the year 1868*, pp. 2-4.
 Thomas, O., 1888. Catalogue of the Marsupialia and Monotremata in the Collection of the British Museum (Natural History). (London).

¹⁴Gould gives the name "Dun-ung-er-de" as of the aborigines of "Toodyay and Guildford Districts." He states "Mr. Gilbert obtained a single example in Western Australia, which had been taken on a farm situate on the upper part of the eastern branch of the River Avon; he subsequently learnt from the natives that it had been seen in the Toodyay District and in the vicinity of Guildford."

In letters to Gould written just prior to leaving Perth for Sydney and after arriving at Sydney, after his first visit to Western Australia (published by Whittell, 1942), Gilbert specifically stated that the Echidna was not known to occur in Western Australia.

- Troughton, E., 1954. Furred Animals of Australia. (Fifth (revised) Edition). Sydney.
- Waterhouse, G. R., 1841. The Natural History of Marsupialia or Pouched Animals. Naturalist's Library (Jardine). Mammalia Volume 11. (Edinburgh).
- Waterhouse, G. R., 1846. A Natural History of the Mammalia, Vol. 1, containing the Order Marsupialia, or Pouched Animals. (London).
- Whittell, H. M. 1942-1951. A Review of the Work of John Gilbert in Western Australia. Part II, *Emu*, vol. 41, pp. 216-242; Part IV, *Emu*, vol. 51, pp. 17-29.

KEY TO THE FROGS OF SOUTH-WESTERN AUSTRALIA

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INTRODUCTION

The most recent paper dealing with Western Australian frogs is Parker's (1940) treatment of the Australian Leptodactylidae. The same author, in a brief paper (Parker, 1938) discussed some of the local Hylidae, and Loveridge (1935) included Western Australian species of both families in his list of Australian frogs at Harvard.

The above papers, based on preserved specimens, are strictly taxonomic; they depend solely on the technique of comparative morphology in establishing species and thus are largely outside the scope of techniques available to field workers. We are at present engaged, in the Zoology Department, in a long term investigation of the systematics and biology of local frogs and it is apparent that new species will need to be erected.

Parker's paper is out of print and until our larger study revising genera is ready for the press this key to the species listed by Parker is issued as an aid to identification in the field. The accompanying illustrations are copied from photographs of live animals and have been selected as portraying the characteristic attitude of the various species when viewed dorsally. The drawings are not to scale but dimensions are given under each species description.

It is always preferable to give detailed distributions by listing localities at which specimens have been collected but such a procedure would make this paper too long for its purpose. So as a compromise only the generalised range of the species is given.

The geographic limits of South-western Australia, for the purpose of this paper, are taken as Western Australia south of the Tropic of Capricorn.

KEY

1. Toes and fingers with sticky terminal pads or discs
 (Hylidae) 2
 Above absent 5
2. Colour on dorsal surface uniform i.e. no pattern 3
 Conspicuous pattern, usually green and gold 4